

=====

Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: [year=2010; month=11; day=22; hr=15; min=16; sec=43; ms=212;  
]

=====

Application No: 10581228 Version No: 2.0

**Input Set:**

**Output Set:**

**Started:** 2010-11-15 17:44:05.832  
**Finished:** 2010-11-15 17:44:07.942  
**Elapsed:** 0 hr(s) 0 min(s) 2 sec(s) 110 ms  
**Total Warnings:** 25  
**Total Errors:** 0  
**No. of SeqIDs Defined:** 25  
**Actual SeqID Count:** 25

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (1)
W 213	Artificial or Unknown found in <213> in SEQ ID (2)
W 213	Artificial or Unknown found in <213> in SEQ ID (3)
W 213	Artificial or Unknown found in <213> in SEQ ID (4)
W 213	Artificial or Unknown found in <213> in SEQ ID (5)
W 213	Artificial or Unknown found in <213> in SEQ ID (6)
W 213	Artificial or Unknown found in <213> in SEQ ID (7)
W 213	Artificial or Unknown found in <213> in SEQ ID (8)
W 213	Artificial or Unknown found in <213> in SEQ ID (9)
W 213	Artificial or Unknown found in <213> in SEQ ID (10)
W 213	Artificial or Unknown found in <213> in SEQ ID (11)
W 213	Artificial or Unknown found in <213> in SEQ ID (12)
W 213	Artificial or Unknown found in <213> in SEQ ID (13)
W 213	Artificial or Unknown found in <213> in SEQ ID (14)
W 213	Artificial or Unknown found in <213> in SEQ ID (15)
W 213	Artificial or Unknown found in <213> in SEQ ID (16)
W 213	Artificial or Unknown found in <213> in SEQ ID (17)
W 213	Artificial or Unknown found in <213> in SEQ ID (18)
W 213	Artificial or Unknown found in <213> in SEQ ID (19)
W 213	Artificial or Unknown found in <213> in SEQ ID (20)

**Input Set:**

**Output Set:**

**Started:** 2010-11-15 17:44:05.832  
**Finished:** 2010-11-15 17:44:07.942  
**Elapsed:** 0 hr(s) 0 min(s) 2 sec(s) 110 ms  
**Total Warnings:** 25  
**Total Errors:** 0  
**No. of SeqIDs Defined:** 25  
**Actual SeqID Count:** 25

Error code      Error Description

This error has occurred more than 20 times, will not be displayed

SEQUENCE LISTING

<110> The United States of America, as represented by the  
Secretary, Department of Health and Human Services  
Chiorini, John A.  
Schmidt, Michael  
Bossis, Ioannis  
Di Pasquale, Giovanni

<120> BOVINE ADENO-ASSOCIATED VIRAL (BAAV) VECTOR AND USES THEREOF

<130> 6137NIDCR-7-PUS

<140> 10581228

<141> 2006-10-26

<150> PCT/US04/40825

<151> 2004-12-06

<150> 60/526,786

<151> 2003-12-04

<160> 25

<170> PatentIn version 3.5

<210> 1

<211> 4694

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic construct

<400> 1

gtggcactcc cccccctgtc gcgttcgctc gttcgctggc tcgattgggg gggtggcagc 60

tcaaagagct gccagacgac ggccctctgg gccgtcgccc cccaaatcga gccagcgaac 120

gagcgaacgc gacagggggg ggagtgccac actctctagc aagggggttt tgttaggttgt 180

gatgtcattt ttgatgtcat tatagttgtc acgcgatagt taatgattaa cagtcatgtg 240

atgtgtgtta tccaatagga tgaaagcgcg cgaatgagat ctcgcgagac ttccggggta 300

taaaaagggtt gagtgaacga gcccggccattctctgct ctggactgct agaggaccc 360

cgcgtccatg gctaccctt atgaagtcat tgttcgcgtt ccatttgatg tggaagagca 420

cctgcctgga atttctgaca actttttaga ctggtaact ggtcaaattt gggagctgcc 480

tcccgagtca gatttgaatt tgactctgat tgagcagcct cagctgacgg tggctgacag 540

aatttcggccgc gtgttctgt acgagtgaa caaattttcc aagcaggaga gcaaatttctt 600

tgtgcagttt gaaaaggat ctgaatattt tcatctgcac acgctcgtgg agacctccgg 660

catctcttct atggtccttg gccgctacgt gagtcagatt cgcccccagc tggtaagg 720  
ggtgtccag aacattgagc cgccggattaa cgactgggc gccatcacca aggtaaagaa 780  
ggcgaggcc aataaggtgg tggattctgg gtatattccc gcctacctgc tgccgaaggt 840  
ccaaccagag cttagtggg cgtggactaa cctcgaagag tataaattgg ccgcctcaa 900  
tctggaggag cgcaaacggc tctcgctca gttcagctt gagtcctcgc agcgctcgca 960  
agaggcatct tcccagaggg acgtttcggc tgaccggc atcaagagca agacttccca 1020  
gaaatacatg gcgctggtaa gctggctggt ggaacatggc atcacttccg agaaggcagt 1080  
gattcaggag aatcaggaga gctacctgtc cttcaactcc acggaaact ctggagcca 1140  
gattaaagcc gcgcttgaca acgcgtcaaa aattatgagt ctgaccaa at ctgcctcaga 1200  
ctatctcgta ggacagactg ttccagagga catttctgaa aacagaatct ggcagat 1260  
tgatctcaac ggctacgacc cggcatacgc gggctctgtt ctctacggct ggtgcactcg 1320  
cgcccttggaa aagaggaaca ccgtctggct gtatggaccc ggcaccaccc gaaagaccaa 1380  
catcgccgaa gccatctctc acaccgtgcc cttttatggc tgtgtgaact ggactaatga 1440  
gaactttccc ttaatgact gtgtggaaaa aatgttgate tggggggagg agggaaagat 1500  
gaccagcaag gtgggtggAAC ccgccaaggc catcttgggg gggcttagag tacgagtgga 1560  
tcaaaaatgt aaatcctctg tacaagtaga ctctaccccg gtgattatca cctccaatac 1620  
taacatgtgt gtgggtgtgg atgggaactc cacgacctt gaacaccagg agccgctgga 1680  
agaccgcattt ttcagatttgc aactcatgcg gggctcccg ccagat 1740  
caagcaggaa gtcaaagact ttttgcttg ggcaaaggc aaccaggcgc cggactca 1800  
cgagttatgt ttcccaaga aagtggcgaa aactgagagg gggagactt ctagaaaacg 1860  
ccccactggat gacgtcacca ataccaacta taaaagtccg gagaagcgaa cccggctctc 1920  
agttgttcct gagacgcctc gcaatcaga cgtgcctgtc gagccgcctc ctctgcgacc 1980  
tctcaactgg tcttcaggt atgaatgcag atgtgactat catgctaaat ttgactctgt 2040  
aacgggggaa tgtgacgagt gtgaatattt gaatcgggc aaaaatggct gtatcttca 2100  
taatgctaca cattgtcaaa ttgtcacgc tggccctcca tggaaaagg aaaatgtgtc 2160  
agatTTTAAAT gatTTGATG actgtataa agagcagtaa ataaagttag tagtcatgtc 2220  
ttttgttgac cacccctccag attgggtggc atcgatcgcc gacggcttc gtgaatttct 2280  
cgcccttgag ggggtcccc cggaaacccaa ggccaaatcaa cagaagcaag ataacgctcg 2340

aggtcttgtg cttccctgggt acaagtatct tggtcctggg aacggccttg ataagggcga 2400  
tcctgtcaat tttgctgacg aggttgccccg agagcacgac ctctcctacc agaaacagct 2460  
tgaggcgggc gataaccctt acctaagta caaccacgacg gacgcagagt ttcaaggagaa 2520  
actcgcttct gacacttctt ttgggggaaa ctttgggaag gctgtttcc aggctaaaaaa 2580  
gaggattctc gaaccttctg gcctgggttga gacgcccggat aaaacggcgc ctgcggcaaa 2640  
aaagaggcct ctagagcaga gtcccaaga gccagactcc tcgagcggag ttggcaagaa 2700  
aggcaaacag cctgccagaa agagactcaa ctttgcacgac gaacctggag ccggagacgg 2760  
gcctccccca gaaggaccat ctccggagc tatgtctact gagactgaaa tgctgtgcagc 2820  
agctggcggaa aatggtggcg atgcgggaca aggtgccgag ggagtgggta atgcctccgg 2880  
tgattggcat tgcgattcca ctgggtcaga gagccacgac accaccaccc caacccgcac 2940  
ctgggtcctg ccgacttaca acaaccacccgtt gtaacctgcgg ctcggctcga gcaacgcac 3000  
cgacaccccttc aacggattct ccacccctg gggatacttt gactttacc gcttccactg 3060  
ccacttctcg ccaagagact ggcaaaaggct catcaacaac cactggggac tgctggccaa 3120  
aagcatgcaa gtccgcatct tcaacatcca agttaaggag gtcacgacgt ctaacgggaa 3180  
gacgaccgta tccaacaacc tcaccagcac ggtccagatc tttgcggaca gcacgtacga 3240  
gctcccgtaac gtatggatg caggtcagga gggcagcttgccttc ccaacgcacgt 3300  
gttcatggtg cctcagtgacg ggtactgcgg actggtaacc ggaggcagct ctaaaaacca 3360  
gacagacaga aatgccttct actgtctggaa gtactttccc agccagatgc tgagaacccgg 3420  
aaacaacttt gagatggtgt acaagtttga aaacgtgccc ttccactcca tgtacgctca 3480  
cagccagagc ctggataggc tgatgaaccc gctgctggac cagtaacctgt gggagctcca 3540  
gtctaccacc tctggagggaa ctctcaacca gggcaattca gccaccaact ttgccaagct 3600  
gacaaaaaca aactttctg gctaccgcaa aaactggctc ccggggccca tgatgaagca 3660  
gcagagattc tccaagactg ccagtcaaaa ctacaagatt ccccaaggaa gaaacaacag 3720  
tctgctccat tatgagacca gaactaccct cgacggaaga tggagcaatt ttggccgggg 3780  
aacggccatg gcaaccgcag ccaacgcacgc caccgacttc tctcaggccc agctcatctt 3840  
tgccggggccca aacatcaccg gcaacaccac cacagatgcc aataacctga tgttcacttc 3900  
agaagatgaa cttagggcca ccaaccccccgg gacactgac ctgtttggcc acctggcaac 3960  
caaccagcaa aacgcacca ccgttccatc cgtacgacgac gtggacggag tcggcgtgta 4020  
cccgaaaaatg gtgtggcagg acagagacat ttactaccaaa gggcccatggccaaat 4080

tccacacacg gatggacact ttcacccgtc tcctctcatt ggccgatttg gactgaaaag	4140
ccgcctcca caaatattca tcaaaaacac tcctgtaccc gccaatcccg caacgacctt	4200
ctctccggcc agaatcaaca gttcatcac ccagtacagc accggacagg tggctgtcaa	4260
aatagaatgg gaaatccaga aggagcggtc caagagatgg aacccagagg tccagttcac	4320
gtccaactac ggagcacagg actcgcttct ctgggctccc gacaacgccc gagcctacaa	4380
agagcccagg gccatggat cccgataacct caccaaccac ctctagccca attctgttgc	4440
ataccctcaa taaaccgtgt attcgttca gtaaaatact gcctcttggt gtcattcggc	4500
gtacaacagc ttacaacaac aacaaaaccc cttgttaga gagtgtggca ctccccccc	4560
tgtcgcggtc gtcgttcgc tggctcgatt ggggggggtgg cagctcaaag agctgccaga	4620
cgcacggccct ctggggcgta gcccccccaa tcgagccagc gaacgagcga acgcgacagg	4680
ggggggagtg ccac	4694

<210> 2  
<211> 1833  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> synthetic construct

atggctacct tctatgaagt cattgttcgc gttccatttg atgtggaaaga gcacctgcct	60
ggaatttctg acaactttgt agactggta actggtaaaa tttggagct gcctcccgag	120
tcagatttga atttgactct gattgagcag cctcagctga cggtggctga cagaattcgc	180
cgcgtgttcc tgtacgagtg gaacaaattt tccaaggcagg agagcaaatt ctttgtgcag	240
tttggaaaagg gatctgaata ttttcatctg cacacgctcg tggagacctc cggcatctt	300
tctatggtcc ttggccgcta cgtgagtcag attcgccccc agctggtgaa ggtgggttcc	360
cagaacatttgc agccgcggat taacgactgg gtccatca ccaaggtaaa gaagggcgga	420
gccaataagg tggtgatttc tgggtatatt cccgcctacc tgctgccgaa ggtccaaacca	480
gagtttcagt gggcggtggac taacctcgaa gagtataat tggccgcctt caatctggag	540
gagcgcaaac ggctcgctgc tcagtttcag cttgagtcct cgcagcgctc gcaagaggca	600
tcttcccaga gggacgtttc ggctgacccg gtcataaga gcaagacttc ccagaaatac	660
atggcgctgg taagctggct ggtggAACAT ggcataactt ccgagaagca gtggattcag	720

gagaatcagg agagctacct gtccttcaac tccacggaa actctcgag ccagattaaa	780
gccgcgttg acaacgcgtc aaaaattatg agtctgacca aatctgcctc agactatctc	840
gtgggacaga ctgttccaga ggacatttct gaaaacagaa tctggcagat ttttgatctc	900
aacggctacg acccggcata cgcgggctct gttctctacg gctggtgac tcgcgcctt	960
ggaaaagagga acaccgtctg gctgtatgga cccgcgacca ccggaaagac caacatcg	1020
gaagccatct ctcacaccgt gccctttat ggctgtgtga actggactaa tgagaactt	1080
cccttaatg actgtgtgga aaaaatgttg atctggtggg aggagggaaa gatgaccagc	1140
aagggtgtgg aaccgccaa ggccatctg ggggggtcta gagtacgagt ggatcaaaaa	1200
tgtaaatcct ctgtacaagt agactctacc ccggtgatta tcacctccaa tactaacatg	1260
tgtgtgtgg tggatggaa ctccacgacc tttgaacacc agcagccgct ggaagaccgc	1320
atgttcagat ttgaactcat gcggcggctc ccgcagatt ttggcaagat taccaagcag	1380
gaagtcaaag actttttgc ttgggcaaag gtcaaccagg tgccggtgac tcacgagtt	1440
atggttccca agaaagtggc gggactgag agggcggaga cttctagaaa acgcccactg	1500
gatgacgtca ccaataccaa ctataaaagt ccggagaagc gggccggct ctcagttgtt	1560
cctgagacgc ctgcgcgttc agacgtgcct gttagagcccg ctccctgcg acctctcaac	1620
tggtcttcca ggtatgaatg cagatgtgac tatcatgcta aatttgactc tgtaacgggg	1680
gaatgtgacg agtgtgaata tttgaatcg ggcaaaaatg gctgtatctt tcataatgct	1740
acacattgtc aaatttgtca cgctgttcct ccatggaaa aggaaaatgt gtcagatTTT	1800
aatgattttg atgactgtaa taaagagcag taa	1833

<210> 3  
 <211> 610  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> synthetic construct

<400> 3

Met Ala Thr Phe Tyr Glu Val Ile Val Arg Val Pro Phe Asp Val Glu			
1	5	10	15

Glu His Leu Pro Gly Ile Ser Asp Asn Phe Val Asp Trp Val Thr Gly		
20	25	30

Gln Ile Trp Glu Leu Pro Pro Glu Ser Asp Leu Asn Leu Thr Leu Ile  
35 40 45

Glu Gln Pro Gln Leu Thr Val Ala Asp Arg Ile Arg Arg Val Phe Leu  
50 55 60

Tyr Glu Trp Asn Lys Phe Ser Lys Gln Glu Ser Lys Phe Phe Val Gln  
65 70 75 80

Phe Glu Lys Gly Ser Glu Tyr Phe His Leu His Thr Leu Val Glu Thr  
85 90 95

Ser Gly Ile Ser Ser Met Val Leu Gly Arg Tyr Val Ser Gln Ile Arg  
100 105 110

Ala Gln Leu Val Lys Val Val Phe Gln Asn Ile Glu Pro Arg Ile Asn  
115 120 125

Asp Trp Val Ala Ile Thr Lys Val Lys Lys Gly Ala Asn Lys Val  
130 135 140

Val Asp Ser Gly Tyr Ile Pro Ala Tyr Leu Leu Pro Lys Val Gln Pro  
145 150 155 160

Glu Leu Gln Trp Ala Trp Thr Asn Leu Glu Glu Tyr Lys Leu Ala Ala  
165 170 175

Leu Asn Leu Glu Glu Arg Lys Arg Leu Val Ala Gln Phe Gln Leu Glu  
180 185 190

Ser Ser Gln Arg Ser Gln Glu Ala Ser Ser Gln Arg Asp Val Ser Ala  
195 200 205

Asp Pro Val Ile Lys Ser Lys Thr Ser Gln Lys Tyr Met Ala Leu Val  
210 215 220

Ser Trp Leu Val Glu His Gly Ile Thr Ser Glu Lys Gln Trp Ile Gln  
225 230 235 240

Glu Asn Gln Glu Ser Tyr Leu Ser Phe Asn Ser Thr Gly Asn Ser Arg  
245 250 255

Ser Gln Ile Lys Ala Ala Leu Asp Asn Ala Ser Lys Ile Met Ser Leu

260

265

270

Thr Lys Ser Ala Ser Asp Tyr Leu Val Gly Gln Thr Val Pro Glu Asp  
275 280 285

Ile Ser Glu Asn Arg Ile Trp Gln Ile Phe Asp Leu Asn Gly Tyr Asp  
290 295 300

Pro Ala Tyr Ala Gly Ser Val Leu Tyr Gly Trp Cys Thr Arg Ala Phe  
305 310 315 320

Gly Lys Arg Asn Thr Val Trp Leu Tyr Gly Pro Ala Thr Thr Gly Lys  
325 330 335

Thr Asn Ile Ala Glu Ala Ile Ser His Thr Val Pro Phe Tyr Gly Cys  
340 345 350

Val Asn Trp Thr Asn Glu Asn Phe Pro Phe Asn Asp Cys Val Glu Lys  
355 360 365

Met Leu Ile Trp Trp Glu Glu Gly Lys Met Thr Ser Lys Val Val Glu  
370 375 380

Pro Ala Lys Ala Ile Leu Gly Gly Ser Arg Val Arg Val Asp Gln Lys  
385 390 395 400

Cys Lys Ser Ser Val Gln Val Asp Ser Thr Pro Val Ile Ile Thr Ser  
405 410 415

Asn Thr Asn Met Cys Val Val Asp Gly Asn Ser Thr Thr Phe Glu  
420 425 430

His Gln Gln Pro Leu Glu Asp Arg Met Phe Arg Phe Glu Leu Met Arg  
435 440 445

Arg Leu Pro Pro Asp Phe Gly Lys Ile Thr Lys Gln Glu Val Lys Asp  
450 455 460

Phe Phe Ala Trp Ala Lys Val Asn Gln Val Pro Val Thr His Glu Phe  
465 470 475 480

Met Val Pro Lys Lys Val Ala Gly Thr Glu Arg Ala Glu Thr Ser Arg  
485 490 495

Lys Arg Pro Leu Asp Asp Val Thr Asn Thr Asn Tyr Lys Ser Pro Glu  
500 505 510

Lys Arg Ala Arg Leu Ser Val Val Pro Glu Thr Pro Arg Ser Ser Asp  
515 520 525

Val Pro Val Glu Pro Ala Pro Leu Arg Pro Leu Asn Trp Ser Ser Arg  
530 535 540

Tyr Glu Cys Arg Cys Asp Tyr His Ala Lys Phe Asp Ser Val Thr Gly  
545 550 555 560

Glu Cys Asp Glu Cys Glu Tyr Leu Asn Arg Gly Lys Asn Gly Cys Ile  
565 570 575

Phe His Asn Ala Thr His Cys Gln Ile Cys His Ala Val Pro Pro Trp  
580 585 590

Glu Lys Glu Asn Val Ser Asp Phe Asn Asp Phe Asp Asp Cys Asn Lys  
595 600 605

Glu Gln  
610

<210> 4  
<211> 1173  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> synthetic construct

<400> 4  
atggcgctgg taagctggct ggtggAACAT ggcatacatt ccgagaAGCA gtggattcag 60  
gagaatcagg agagctacct gtcTTcaac tccacggaa actctcgag ccagattaaa 120  
gccgcgcTTG acaacgcgtc aaaaATTATG agtctgacca aatctgcTc agactatctc 180  
gtgggacaga ctgttccaga ggacatttct gaaaacagaa tctggcagat ttttgatctc 240  
aacggctacg acccggcata cgcgggctct gttctctacg gctggtgac tcgcgcTTT 300  
ggaaaAGAGGA acaccgtctg gctgtatgga cccgcgacca ccggAAAGAC caacatcgCG 360  
gaagccatct ctcacaccgt gccCTTTat ggctgtgtGA actggactaa tgagaacttt 420

cccttaatg actgtgtgga aaaaatgtt gatgaccagc	480
aagggtggg aacccgc当地 ggccatctt ggggggtcta gagtacgagt gcatcaaaaa	540
tgtaaatcct ctgtacaagt agactctacc ccgggtgatta tcacctccaa tactaacatg	600
tgtgtggtgg tggatggaa ctccacgacc tttgaacacc agcagccgct ggaagaccgc	660
atgttcagat ttgaactcat gcggcggtc ccggccagatt ttggcaagat taccaagcag	720
gaagtcaaag actttttgc ttggc当地 aaag gtcaaccagg tgccggtgac tcacgagtt	780
atggttccca agaaagtggc gggactgag agggcggaga cttctagaaa acgcccactg	840
gatgacgtca ccaataccaa ctataaaagt ccggagaagc gggccggct ctcaagtt	900
cctgagacgc ctgcagttc agacgtgcct gttagagccg ctcccttgcg acctctcaac	960
tggtcttcca ggtatgaatg cagatgtgac tatcatgcta aatttgactc tgtaacgggg	1020
gaatgtgacg agtgtgataa ttgaatcg ggcaaaaatg gctgtatctt tcataatgct	1080
acacattgtc aaatttgc当地 cgctgttcc ccatggaaa aggaaaatgt gtcaagat	1140
aatgattttg atgactgtaa taaagagcag taa	1173

<210> 5  
<211> 390  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> synthetic construct

<400> 5

Met Ala Leu Val Ser Trp Leu Val Glu His Gly Ile Thr Ser Glu Lys			
1	5	10	15

Gln Trp Ile Gln Glu Asn Gln Glu Ser Tyr Leu Ser Phe Asn Ser Thr		
20	25	30

Gly Asn Ser Arg Ser Gln Ile Lys Ala Ala Leu Asp Asn Ala Ser Lys		
35	40	45

Ile Met Ser Leu Thr Lys Ser Ala Ser Asp Tyr Leu Val Gly Gln Thr		
50	55	60

Val Pro Glu Asp Ile Ser Glu Asn Arg Ile Trp Gln Ile Phe Asp Leu			
65	70	75	80

Asn Gly Tyr Asp Pro Ala Tyr Ala Gly Ser Val Leu Tyr Gly Trp Cys  
85 90 95

Thr Arg Ala Phe Gly Lys Arg Asn Thr Val Trp Leu Tyr Gly Pro Ala  
100 105 110

Thr Thr Gly Lys Thr Asn Ile Ala Glu Ala Ile Ser His Thr Val Pro  
115 120 125

Phe Tyr Gly Cys Val Asn Trp Thr Asn Glu Asn Phe Pro Phe Asn Asp  
130 135 140

Cys Val Glu Lys Met Leu Ile Trp Trp Glu Glu Gly Lys Met Thr Ser  
145 150 155 160

Lys Val Val Glu Pro Ala Lys Ala Ile Leu Gly Gly Ser Arg Val Arg  
165 170 175

Val Asp Gln